

# PATENT COOPERATION TREATY

# PCT

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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

|  |  |  |
|--|--|--|
| Applicant's or agent's file reference<br>BV-1012 WO  | <b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416          |  |
| International application No.<br>PCT/SE 2003/000139  | International filing date (day/month/year)<br>28.01.2003 | Priority date (day/month/year)<br>29.01.2002 |
| International Patent Classification (IPC) or national classification and IPC<br>C07K 14/47, A61K 38/17 |  |  |
| Applicant<br>Biovitrum AB et al  |  |  |

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:
    - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:
 

|                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input checked="" type="checkbox"/> | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

|   |   |
|---|---|
| Date of submission of the demand<br><br>28.08.2003  | Date of completion of this report<br><br>07.04.2004                           |
| Name and mailing address of the IPEA/SE<br>Patent- och registreringsverket<br>Box 5055<br>S-102 42 STOCKHOLM<br>Facsimile No. +46 8 667 72 88 | Authorized officer<br><br>Yvonne Siösteen/BS<br>Telephone No. +46 8 782 25 00 |

Form PCT/IPEA/409 (cover sheet) (January 2004)

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE 2003/000139

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))  
☐ publication of the international application (under Rule 12.4)  
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ the international application as originally filed/furnished

☐ the description:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the claims:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the drawings:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE 2003/000139

**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application☒ claims Nos. 9-14, 18-22

because:

☒ the said international application, or the said claims Nos. 9-14, 18-22  
relate to the following subject matter which does not require an international preliminary examination (*specify*):

**See PCT Rule 67.1.iv): Methods for treatment of the human or animal body by surgery or therapy, as well as diagnostic methods.**

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. \_\_\_\_\_  
are so unclear that no meaningful opinion could be formed (*specify*):☐ the claims, or said claims Nos. \_\_\_\_\_ are so inadequately supported  
by the description that no meaningful opinion could be formed.☐ no international search report has been established for said claims Nos. \_\_\_\_\_☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the  
Administrative Instructions in that:

the written form

☐

has not been furnished

☐

does not comply with the standard

the computer readable form

☐

has not been furnished

☐

does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with  
the technical requirements provided for in the Annex C-bis of the Administrative Instructions.☐ See Supplemental Box for further details.

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

|                               |        |                       |     |
|-------------------------------|--------|-----------------------|-----|
| Novelty (N)                   | Claims | <u>1-8, 15-17, 23</u> | YES |
|                               | Claims |                       | NO  |
| Inventive step (IS)           | Claims | <u>1-8, 15-17, 23</u> | YES |
|                               | Claims |                       | NO  |
| Industrial applicability (IA) | Claims | <u>1-8, 15-17, 23</u> | YES |
|                               | Claims |                       | NO  |

## 2. Citations and explanations (Rule 70.7)

The claimed invention relates to a complex of human FOXC2 protein (SEQ ID NO:1) and a FOXC2-interacting protein: p621 (SEQ ID NO:2), NOLP (SEQ ID NO:3), Heat Shock Cognate Protein-71 (HSC71, SEQ ID NO:4), FTP3 (SEQ ID NO:5), CLH1 (SEQ ID NO:6) or Kinase A Anchor Protein 84/149 (AKAP149, SEQ ID NO:7). The use of the complex for identifying agents useful in the treatment of medical conditions which can be treated by modulated FOXC2 activity, such as obesity, hypertriglyceridemia, diet-induced insulin resistance and/or type 2 diabetes is also claimed.

## Documents cited in the International Search Report:

D1 WO 02/27008 (published 4 April 2002)

D2 Kume et al, Genes & Development, Vol 15, 2001, pages 2470-2482.

D3 Cederberg et al, Cell, Vol 106, 2001, pages 563-573.

The problem to be solved by the invention is a method for identifying agents which can be useful in the treatment of medical conditions which can be treated by modulated FOXC2 activity.

This problem is solved by using a protein complex consisting of human FOXC2 protein and a protein chosen from p621, FTP3, CLH1 and Kinase A Anchor protein 84/149 which interacts with FOXC2.

The cited documents represent the general state of the art. None of the documents disclose that the proteins p621, NOLP, HSC71, FTP3, AKAP149 and CLH1 has the ability to interact with FOXC2. The cited prior art does not give any indication that would lead a person skilled in the art to prepare the claimed complex of FOXC2 and p621, NOLP, HSC71, FTP3, AKAP149 or CLH1.

.../...

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V

Thus, the invention defined in claims 1- 8, 15-17, 23 is not disclosed by any of these documents.

Therefore, the claimed invention is not considered to be obvious to a person skilled in the art.

Accordingly, the invention defined in claims 1-8, 15-17, 23 is novel and is considered to involve an inventive step. The invention is industrially applicable.